b) cutting the block of polymeric foamed material with a plurality of hot wire cutters, which is preferably computer-operated, in a first direction generally perpendicular from the side of the block of polymeric foamed material;

c) cutting, immediately after said cutting step (b), the block of polymeric foamed material with the plurality of hot wire cutters in a second direction generally perpendicular from the first direction until each hot wire cutter forms in the polymeric foamed material a first respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material;

d) cutting, immediately after said cutting step (c), the block of polymeric foamed material with the plurality of hot wire cutters in a third direction generally perpendicular from the second direction until each hot wire cutter forms in the polymeric foamed material a second respective cut seared surface terminating in the opposed ends of the block of the polymeric foamed material;

e) cutting the block of polymeric foamed material with the plurality of hot wire cutters in a fourth direction until each hot wire cutter forms in the polymeric foamed material a third respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material;

f) cutting the block of polymeric foamed material with the plurality of hot wire cutters in a fifth direction, which may be generally perpendicular from the fourth direction, until each hot wire cutter forms in the polymeric foamed material a fourth respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material; and

g) cutting the block of polymeric foamed material with the plurality of hot wire cutters in a sixth direction, which may be generally perpendicular from the fifth direction, to produce a plurality of polymeric foamed material structures, each of the polymeric foamed material structures having a first cut seared surface and a second cut seared surface for contacting a first brace member and a third cut seared surface and a fourth cut seared surface for contacting a second brace member.

The immediate foregoing method may additionally comprise cutting the block of polymeric foamed material with the plurality of hot wire cutters between the cutting step (d)

and the cutting step (e). Also, the method may additionally comprise cutting the block of polymeric foamed material with the plurality of hot wire cutters such that each of the polymeric foamed material structures has a tongue member and a channel member. The cutting step (f) may be before or after the cutting step (e).

Preferably, the cutting step (g) is after the cutting step (f). The cutting step (c) additionally produces an opposed first respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material and opposed to the first respective cut seared surface to form a first slot in each of the polymeric foamed material structures; and the cutting step (d) additionally produces an opposed second respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material and opposed to the second respective cut seared surface to form a second slot in each of the polymeric foamed material structures, each of the polymeric foamed material structures having the first slot and the second slot for receiving a first brace member; and the cutting step (e) additionally produces an opposed third respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material and opposed to the third respective cut seared surface to form a third slot in each of the polymeric foamed material structures; and the cutting step (f) additionally producing an opposed fourth respective cut seared surface terminating in the opposed ends of the block of polymeric foamed material and opposed to the fourth respective cut seared surface to form a fourth slot in each of the polymeric foamed material structures, each of the polymeric foamed material structures having the third slot and the fourth slot for receiving a second brace member.

The immediate foregoing method more specifically additionally comprises forming a first flange-return slot, a second flange-return slot, a third flange-return slot, and a fourth flange-return slot in each of the polymeric foamed material structures. The method more specifically further additionally comprises providing a plurality of first brace members wherein each of the first brace members comprises a first web, a first flange secured to the first web, a first flange return secured to the first flange, a second flange secured to the web, and a second flange return secured to said second flange; and additionally comprising providing a plurality of second brace members wherein each of the second brace members comprises a second web, a third flange secured to the second web, a third flange return secured to the third

flange, a fourth flange secured to the second web, a fourth flange return secured to the fourth flange. The plurality of the first brace members and the plurality of the second brace members are preferably disposed in the plurality of polymeric foamed material structures such that each of the polymeric foamed material structures comprises the first web of the first brace member positioned against the first cut seared surface, the first flange positioned against the second cut secured surface, the first flange return positioned in the first flange-return slot, the second flange return positioned in the second flange-return slot, the second web of the second brace member positioned against the fourth cut seared surface, the third flange positioned against the third cut seared surface, the third flange return positioned in the third flange-return slot, and the fourth flange return positioned in the fourth flange-return slot. The block of polymeric foamed material may be cut prior to the cutting step (g) or after the cutting step (g) and/or prior to disposing the plurality of the first brace members and the plurality of the second brace members in the plurality of polymeric foamed material structures. Embodiments of the present inventions include one or more polymeric foamed material structures, including one or more produced in accordance with any of the methods of the embodiments of the present invention.

Further embodiments of the present invention include a method for forming a structure comprising the steps of:

a) cutting a first polymeric foamed material with a first cutter (e.g., a hot wire cutter or laser cutter) in a first direction relative to a first side surface of the first polymeric foamed material;

b) cutting with the first cutter the first polymeric foamed material in a second direction relative to the first direction to produce a first-cutter first cut surface terminating in opposed ends of the first polymeric foamed material;

c) cutting with the first cutter the first polymeric foamed material in a third direction relative to the second direction to produce a first-cutter second cut surface terminating in the opposed ends of the first polymeric foamed material

d) cutting the first polymeric foamed material with the first cutter to produce a first tongue in the first polymeric foamed material;

e) providing a first brace member having a first web and at least one first flange secured to the first web;

f) disposing respectively the first web and the first flange of the first brace member against the first-cutter first cut surface of step (b) and the first-cutter second cut surface of step (c) to produce a first polymeric foamed material panel having the first tongue;

g) cutting a second polymeric foamed material with a second cutter (e.g., a hot wire cutter or a laser cutter) to produce a second channel in the second polymeric foamed material;

h) cutting the second polymeric foamed material with the second cutter in a first direction relative to a second side surface of the second polymeric foamed material;

i) cutting with the second cutter the second polymeric foamed material in a second direction relative to the first direction to produce a second-cutter first cut surface terminating in opposed ends of the second polymeric foamed material;

j) cutting with the second cutter the second polymeric foamed material in a third direction relative to the second direction to produce a second-cutter second cut surface terminating in the opposed ends of the second polymeric foamed material;

k) providing a second brace member having a second web and at least one second flange secured to the second web;

l) disposing respectively the second web and the second flange of the second brace member against the second-cutter first cut surface of step (i) and the second-cutter second cut surface of step (j) to produce a second polymeric foamed material panel having the second channel; and

m) sliding the first tongue of the first polymeric foamed material panel into the second channel of the second polymeric foamed material panel to form a structure.

The immediate foregoing method preferably additionally comprises cutting the first polymeric foamed material with the first cutter to produce a first channel in the polymeric foamed material and cutting the second polymeric foamed material with the second cutter to produce a second tongue in the second polymeric foamed material. The first direction of step (a) is preferably generally perpendicular to the first side surface of step (a), and the second direction of step (b) is preferably generally perpendicular to the first direction of step (a). The third direction step (c) is preferably generally perpendicular to the second direction of step (b). The first direction of step (h) is preferably generally perpendicular to the second side surface of

step (h), the second direction of step (i) is preferably generally perpendi· ular to the first direction of step (h), and the third direction of step (j) is preferably gene ally perpendicular to the second direction of step (i). The method additionally comprises cutt ng respectively the first polymeric foamed material with the first cutter in the cutting steps (a) through (d) generally simultaneously with cutting respectively the second polymeri· foamed material with the second cutter in the cutting steps (g) through (j). The cutting step (b) preferably additionally produces an opposed first-cutter first cut surface terminatin ; in the opposed ends of the first polymeric foamed material and opposed to the first-cutter fi :t cut surface to form a first-cutter first slot in the first polymeric foamed material; and the cutti ıg step (c) preferably additionally producing an opposed first-cutter second cut surface termi ating in the opposed ends of the first polymeric foamed material and opposed to the first-cut er second cut surface to form a first-cutter second slot in the first polymeric foamed material uch that after the disposing step (f) the first web and the first flange of the first brace mei ıber are further disposed respectively in the first-cutter first slot and in the first-cutter s· cond slot. The cutting step (i) preferably additionally produces an opposed second-cutter first ut surface terminating in the opposed ends of the second polymeric foamed material and oppo ed to the second-cutter first cut surface to form a second-cutter first slot in the second polymer c foamed material. The cutting step (j) preferably additionally produces an opposed secon -cutter second cut surface terminating in the opposed ends of the second polymeric foame l material and opposed to the second-cutter second cut surface to form a second-cutter second lot in the second polymeric foamed material such that after the disposing step (l) the sec nd web and the second flange of the second brace member are further disposed respectively in the second-cutter first slot and in second-cutter second slot. The first brace member and the s cond brace member may respectively comprise any suitable shape, such as a generally C-sh ape, and a portion of the first web of the first brace member may protrude from the first poly meric foamed material panel and/or a portion of the second web of the second brace member ı ıay protrude from the second polymeric foamed material panel. A structure produced in acc rdance with any of the methods of the embodiments of the present invention is an embodimen t of the present invention.

Further alternative embodiments of the present invention also include a method for forming a structure comprising the steps of:

a) providing a first polymeric foamed material structure comprising a pair of opposed first ends, a first defined side surface, a first tongue, a first hotwire-cut seared surface having been cut by a hotwire cutter in a first direction relative to the first defined side surface and terminating in the pair of opposed first ends, a second hotwire-cut seared surface having been cut by a hotwire cutter in a second direction from the first hotwire-cut seared surface and terminating in the pair of opposed first ends, and a third hotwire-cut seared surface having been cut by a hotwire cutter in a third direction from the second hotwire-cut seared surface and terminating in the pair of opposed first ends;

b) providing a first brace member having a first web and at least one first flange secured to the web;

c) disposing respectively the first web and the first flange of the first brace member against the second hotwire-cut seared surface of step (a) and the third hotwire-cut seared surface of step (a) to produce a first polymeric foamed material panel having the first tongue;

d) providing a second polymeric foamed material structure comprising a pair of opposed second ends, a second defined side surface, a second channel, a first hotwire-cut seared surface having been cut by a hotwire cutter in a first direction relative to the second defined side surface and terminating in the pair of opposed second ends, a second hotwire-cut seared surface having been cut by a hotwire cutter in a second direction from the first hotwire-cut seared surface and terminating in the pair of opposed second ends, and a third hotwire-cut seared surface having been cut by a hotwire cutter in a third direction from the second hotwire-cut seared surface and terminating in the pair of opposed second ends;

e) providing a second brace member having a second web and at least one second flange secured to the web;

f) disposing respectively the second web and the second flange of the second brace member against the second hotwire-cut seared surface of step (d) and the third hotwire-cut seared surface of step (d) to produce a second polymeric foamed material panel having the second channel; and

g) disposing the first tongue of the first polymeric fo med material panel into the second channel of the second polymeric foamed material panel o form a structure. An embodiment of the present invention includes a structure formed in acc rdance with the immediate foregoing method.

Additional alternate embodiments of the present inventio further include a method for producing a plurality of polymeric foamed material panels c mprising the steps of:

a) cutting a polymeric foamed material with a plura ity of cutters in a generally perpendicular direction from a defined surface (e.g., a side) o the polymeric foamed material;

b) cutting in at least a second direction the polymer : foamed material of step (a) with the plurality of cutters until each cutter forms in the polym ric foamed material a first respective slot terminating in opposed ends of the polymeric foam d material;

c) cutting with the plurality of cutters the polymeric foamed material of step (b) in the generally perpendicular direction of step (a) to produce a plurality of polymeric foamed material structures having first slots; and

d) disposing first brace members (e.g., Z-shape or C -shape brace members) in the first slots of the polymeric foamed material structures of step (c) o produce a plurality of polymeric foamed material panels with each polymeric foamed materia panel having one of the first brace members.

The immediate foregoing method preferably additionall comprises cutting the polymeric foamed material with the plurality of cutters until each cutte forms a second respective slot in the polymeric foamed material and the produced plur lity of polymeric foamed material structures include second slots, and disposing second brace members in the second slots of the produced polymeric foamed material structures suc that each polymeric foamed material panel includes one of the second brace members. The first and second brace member include respectively a web which may protrude from the poly eric foamed material panel. This embodiment of the present invention includes polymeric f amed material panels formed in accordance with the immediate foregoing method.

Additional alternate embodiments of the present inventi n further provides a method for producing a plurality of polymeric foamed material panels comprising the steps of:

a) cutting a polymeric foamed material with a plurality of cutters in a generally perpendicular direction from a defined surface of the polymeric foamed material;

b) cutting in at least a second direction the polymeric foamed material of step (a) with the plurality of cutters until each cutter forms in the polymeric foamed material a first respective slot terminating in opposed ends of the polymeric foamed material;

c) cutting with the plurality of cutters the polymeric foamed material of step (b) in the generally perpendicular direction of step (a) to produce a plurality of polymeric foamed material structures having first slots; and

d) disposing first brace members in the first slots of the polymeric foamed material structures of step (c) to produce a plurality of polymeric foamed material panels with each polymeric foamed material panel having one of the first brace members.

In the immediate foregoing method, the first brace members preferably each comprise a generally C-shape, and the defined surface is a side of the polymeric foamed material. Each of the first brace members also preferably include a web portion which protrudes from the polymeric foamed material panel. The immediate foregoing method preferably additionally comprises cutting the polymeric foamed material with the plurality of cutters until each cutter forms a second respective slot in the polymeric foamed material and the produced plurality of polymeric foamed material structures include second slots, and disposing second brace members in the second slots of the produced polymeric foamed material structures such that each polymeric foamed material panel includes one of the second brace members. Embodiments of the invention also include a plurality of polymeric foamed material panels produced in accordance with the immediate foregoing method.

Further additional alternative embodiments of the present invention provide a method for producing a plurality of polymeric foamed material panels comprising the steps of:

a) providing a block of polymeric foamed material in a generally stationary position having a defined surface (e.g., a side of the block of the polymeric foamed materials) and a pair of opposed ends;

b) moving from the defined surface a plurality of cutters through the generally stationary block of polymeric foamed material of step (a) in a generally perpendicular direction of travel;

c) interrupting the movement of the plurality of cutters from the generally perpendicular direction of travel through the generally stationary blocks of polymeric foamed material to move the cutters in at least one direction of travel which differs from the generally perpendicular direction of travel such that each cutter produces a respective brace-receiving slot in the polymeric foamed material terminating in the opposed ends;

d) continuing the moving step (b) of the plurality of cutters in the generally perpendicular direction of travel, while intermittently interrupting the movement of the plurality of cutters from generally perpendicular direction of travel to move the cutters in at least one direction of travel which differs from the generally perpendicular direction of travel such that each cutter produces at least one additional respective brace-receiving slot in the polymeric foamed material, until the plurality of cutters have moved completely through the generally stationary block of polymeric foamed material after which a plurality of polymeric foamed material structures are produced with each polymeric foamed material structure having a plurality of brace-receiving slots; and

e) disposing brace members into the brace-receiving slots of the polymeric foamed material structures of step (d) to produce a plurality of polymeric foamed material panels with each polymeric foamed material panel having two of the brace members. This embodiment of the present invention includes a plurality of polymeric foamed material panels produced in accordance with the immediate foregoing method.

Another additional embodiment of the present invention provides a method for producing a plurality of polymeric foamed material panels comprising the steps of:

a) cutting a polymeric foamed material in a first direction with a plurality of cutters generally moving in unison;

b) cutting subsequently the polymeric foamed material of step (a) in a second direction with the plurality of cutters generally moving in unison;

c) cutting, after the cutting step (b), the polymeric foamed material of step (b) in the first direction with the plurality of cutters generally moving in unison;

d) cutting, after the cutting step (c), the polymeric foamed material of step (c) in a third direction with the plurality of cutters generally moving in unison;

e) cutting, after the cutting step (d), the polymeric foamed material of step (d) in the first direction with the plurality of cutters generally moving in unison until the cutters have cut through the polymeric foamed material of step (d) to produce a plurality of polymeric foamed material structures having brace-receiving configurations; and

f) sliding brace members into the brace-receiving configurations of the polymeric foamed material structures of step (e) to produce a plurality of polymeric foamed material panels with each polymeric foamed material panel having one of the brace members. A plurality of polymeric foamed material panels produced in accordance with the immediate foregoing method is also an embodiment of the present invention.

An embodiment of the present invention also provides a method for producing a plurality of polymeric foamed material panels comprising the steps of:

a) providing a block of polymeric foamed material having a defined surface (e.g., a side or a side surface or a defined side surface) and a pair of opposed ends;

b) moving from the defined surface a plurality of cutters through the block of polymeric foamed material in a generally perpendicular direction of travel, while interrupting at least one time the moving of the plurality of cutters in the generally perpendicular direction of travel to move the cutters through the block of polymeric foamed material in at least one direction of travel which differs from the generally perpendicular direction of travel, such that each cutter produces a respective brace-receiving slot in the polymeric foamed material terminating in the opposed ends, until the plurality of cutters have moved completely through the block of polymeric foamed material to produce a plurality of polymeric foamed material structures with each structure having at least one brace-receiving slot; and

c) disposing a brace member into each brace-receiving slot of the polymeric foamed material structures to produce a plurality of polymeric foamed material panels with each of the polymeric foamed material panels having at least one brace member. The foregoing embodiment of the present invention includes a plurality of polymeric foamed material panels produced in accordance with the immediate foregoing method.

Another embodiment of the present invention also includes a method for producing a polymeric foamed material panel comprising the steps of:

a) providing a block of polymeric foamed material having a defined surface and a pair of opposed ends;

b) cutting the block of polymeric foamed material in a first direction relative to the defined surface;

c) cutting the block of polymeric foamed material in a second direction to produce a first slot including a first cut surface terminating in the opposed ends;

d) cutting the block of polymeric foamed material from the first slot to produce a second slot communicating with the first slot and including a second cut surface terminating in the opposed ends; and

e) disposing a brace member against the first cut surface and the second cut surface respectively in the first slot and in the second slot to produce a polymeric foamed material panel. The foregoing embodiment of the present invention includes a polymeric foamed material panel produced in accordance with the immediately foregoing method.

Further additional alternative embodiments of the present invention also provide a method for producing a plurality of polymeric foamed material structures having slot sections for receiving stud members comprising the steps of:

a) cutting a polymeric foamed material with a plurality of cutters (e.g., hotwire cutters and/or laser cutters which may be computer operated) in a generally perpendicular direction from a side of the polymeric foamed material;

b) cutting subsequently in at least a second direction the polymeric foamed material of step (a) with the plurality of cutters until each cutter forms a first respective slot section in the polymeric foamed material, the first respective slot section terminating in opposed ends of the polymeric foamed material; and

c) cutting in the generally perpendicular direction of step (a) the polymeric foamed material with the plurality of cutters to produce a plurality of polymeric foamed material structures having a plurality of first slot sections, with each polymeric foamed material structure having one of the first slot sections.

In the immediate foregoing method the plurality of cutters preferably move generally simultaneously, and the polymeric foamed material of step (a), step (b) and step (c) is preferably generally stationary. The at least one second direction may comprise a second

direction generally perpendicular to the generally perpendicular direction of step (a). The immediate foregoing method preferably additionally comprises cutting with the plurality of cutters, before the cutting step (c) and after the cutting step (b), the polymeric foamed material in the generally perpendicular direction of step (a) until each cutter forms a second respective slot section in the polymeric foamed material, the second respective slot section communicating with the first perspective slot section and terminating in opposed ends of the polymeric foamed material; and the cutting step (c) subsequently produces a plurality of polymeric foamed material structures having a plurality of first slot sections and a plurality of second slot sections, with each polymeric foamed material structure having one of the first slot sections and one of the second slot sections. The immediate foregoing method preferably alternatively additionally comprises cutting with the plurality of cutters, before the cutting step (c) and after the cutting step (b), the polymeric foamed material in the generally perpendicular direction of step (a) and subsequently in a fourth direction until each cutter forms a second respective slot section and a third respective slot section in the polymeric foamed material, the second respective slot section communicating with the first respective slot section and terminating in opposed ends of the polymeric foamed material and the third respective slot section communicating with the second respective slot section and terminating in opposed ends of the polymeric foamed material; and the cutting step (c) subsequently produces a plurality of polymeric foamed material structures having a plurality of first slot sections, a plurality of second slot sections, and a plurality of third slot sections, with each polymeric foamed material structure having one of the first slot sections, one of the second slot sections, and one of the third slot sections. The immediate foregoing method also preferably additionally comprises providing a plurality of stud members, and disposing the plurality of stud members in the first slot sections of the polymeric foamed material structures to produce a plurality of polymeric foamed material panels, with each polymeric foamed material panel having one of the stud members. The immediate foregoing method also preferably alternatively additionally comprises providing a plurality of stud members, and disposing the plurality of stud members in the first slot sections and in the second slot sections and in the third slot sections of the polymeric foamed material structures to produce a plurality of polymeric foamed material panels, with each of the polymeric foamed material panels having one of the stud members

respectively occupying the first slot section, the second slot section and the third slot section associated with the each of the polymeric foamed material panels. A plurality of polymeric foamed material structure produced in accordance with the immediate foregoing method is also an embodiment of the present invention.

An alternative embodiment of the present invention provides a method for producing a plurality of polymeric foamed material structures having slots for receiving stud members comprising the steps of:

a) cutting a polymeric foamed material with a plurality of cutters (e.g., hot wire cutters, and/or laser cutters, which may be computer operated) in a generally perpendicular direction from a side surface of the polymeric foamed material;

b) cutting subsequently in at least a second direction the polymeric foamed material of step (a) with the plurality of cutters until each cutter forms a first respective slot in the polymeric foamed material, the first respective slot terminating in opposed ends of the polymeric foamed material;

c) cutting in the generally perpendicular direction of step (a) the polymeric foamed material with the plurality of cutters to produce a plurality of polymeric foamed material structures having a plurality of first slots, with each polymeric foamed material structure having one of the first slots.

The immediate foregoing method may additional comprise cutting, prior to the cutting step (c) and after the cutting step (b), the polymeric foamed material with the plurality of cutters until each cutter forms a second respective slot in the polymeric foamed material, the second respective slot terminating in opposed ends of the polymeric foamed material; and the cutting step (c) subsequently producing a plurality of polymeric foamed material structures having a plurality of first slots and a plurality of second slots, with each polymeric foamed material structure having one of the first slots and one of the second slots. The polymeric foamed material may be generally stationary and the plurality of cutters may generally move simultaneously. The immediate foregoing method may additionally comprise providing a plurality of stud members wherein each of the stud members comprises a web and a flange integrally bound to the web; and disposing the plurality of stud members in the first slots and in the second slots of the polymeric foamed material structures to produce a plurality of

polymeric foamed material panels, with each of the polymeric foamed material panels having the web and the flange of one of the stud members respectively occupying the first slot and the second slot associated with the each of the polymeric foamed material panels. Embodiments of the invention also include a plurality of polymeric foamed material structures produced in accordance with the immediate foregoing method.

A further alternative embodiment of the present invention provides a method for producing a plurality of polymeric foamed material structures having brace-receiving slots comprising the steps of:

a) providing a generally stationary block of polymeric foamed material having a side surface and a pair of opposed ends;

b) moving generally simultaneously from the side surface a plurality of cutters (e.g., hot wire cutters or laser cutters which may be computer operated) through the block of polymeric foamed material in a generally perpendicular direction of travel, while interrupting at least one time the moving of the plurality of cutters in the generally perpendicular direction of travel to move the cutters through the block of polymeric foamed material in at least one direction of travel comprising a direction which differs from the generally perpendicular direction of travel, such that each cutter produces a respective brace-receiving slot in the polymeric foamed material terminating in the opposed end, until the plurality of cutters have moved completely through the generally stationary block of polymeric foamed material to produce a plurality of polymeric foamed material structures having a plurality of brace-receiving slots, with each polymeric foamed material structure having at least one of the brace-receiving slots.

The immediate foregoing method additionally comprises providing a plurality of brace members; and disposing the plurality of brace members in the plurality of brace-receiving slots of the polymeric foamed material structures to produce a plurality of polymeric foamed material panels, with each polymeric foamed material panel having at least one of the brace members. The at least one direction of travel may comprise a first direction of travel, a second direction of travel immediately following the first direction of travel and being generally parallel to the generally perpendicular direction of travel, and a third direction of travel immediately following the second direction of travel. The first direction of travel may